

Appl. No. 10/540,160

Reply to Office Action of December 13, 2006

REMARKS/ARGUMENTS

On page 2 of the Official Action the Examiner has objected to the information disclosure statement that was filed because copies of the listed non-patent literature publications were not provided. On the returned form the Examiner required copies of the missing documents. Enclosed is a Supplemental Information Disclosure Statement with the missing documents.

The Examiner has rejected claims 1, 2, 4, 6, 7 and 9 as being anticipated by Nielsen et al (Nucleic Acids Research (1987), 15 (8), 3626). The Examiner reasons that Nielsen describes a process comprising reacting a phosphorus trihalide with 3-hydroxypropionitrite in dry acetonitrile. However, to be anticipatory, the art must include all features of the invention as claimed. The disclosure of the features must be certain and not just speculative.

The method of claim 1 of the present application clearly requires the reaction of "a phosphorus trihalide with a dialkylamine" in the first step. The method of Nielsen does not involve the reaction of a phosphorus trihalide with dialkylamine but instead describes the reaction of a phosphorus trihalide with

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a hydroxynitrile compound. Accordingly, the Examiner's assertion of lack of novelty based on Nielsen is not supported because a dialkylamine is clearly not used in the first stage of the Nielsen process.

The Examiner also rejected all of the claims as being obvious over Nielsen in view of Shamblee et al (US 2003/0236233 A1).

Shamblee describes a method of reacting a phosphorus trihalide with a cyanoalkyl-containing agent to form cyanoalkyl phosphordihalidite which is then reacted with a dialkylamine to form a cyanoalkyl tetraalkylphosphoramidite and an amine hydrochloride by-product.

As noted above, Nielsen does not disclose all the features of the present invention. Combining with Shamblee does not provide the missing teaching. Shamblee does not describe a method where a phosphorus trihalide is reacted with a dialkylamine in the first step nor render it obvious. Therefore if one combines these documents, no resulting combination would fall within the scope of the present invention, nor would it hint at the process of the present invention.

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The Examiner's statement of obviousness on page 3 of the Official Action and the specific objections based on the combination of Nielsen and Shamblee on page 4 are all therefore unsupported by the art, taken alone or in any combination.

The requirements of the present invention are not just arbitrary selection. The process of the present invention, as detailed in paragraphs 2 and 3 of page 2 of the description, is to use two different non-miscible solvents (e.g. Claim 1) whereby phosphorodiamidite products are preferentially soluble in the non-polar layer whereas the diester and other unwanted polar by-products are insoluble and remain in the polar solvent layer. Accordingly, the present invention provides advantages over prior art procedures, such as those disclosed in Nielsen and Shamblee, which demand the chemical isolation of intermediate materials and require extensive purification procedure prior to the isolation of high purity phosphorodiamidite products.

In view of the above, it is submitted that the present invention is not shown or suggested by the prior art alone or in

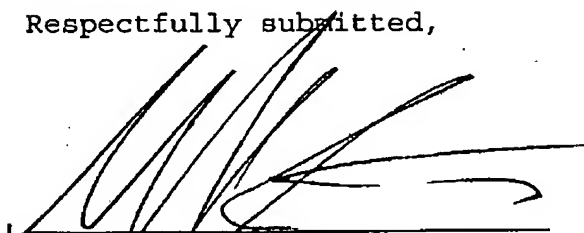
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combination. Withdrawal of the rejection and allowance of the application are respectfully requested.

Respectfully submitted,

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